

IN THE CLAIMS

Claims 4, 11, 15, and claims 19-23 are pending in this application. Please cancel claims 1, 9-10, and 14 without prejudice or disclaimer, amend claims 4, 11, and 15, and add new claims 19-23 as follows:

1-3. (Canceled)

4. (Currently Amended) ~~[[The]]~~ A computer system according to claim 1, comprising:
a plurality of virtual machines formed on a control program of a computer;
an I/O device coupled with a PCI bus of said computer and shared among said plurality of virtual machines;
a single port disposed in said I/O device and connected to said PCI bus;
PCI connection allocating means for setting a state of logical connection between selected at most one of said plurality of virtual machines and said port at a time; and
I/O device switching means for updating said state of logical connection set by said PCI connection allocating means according to a control signal received from said selected virtual machine,
wherein said selected virtual machine changes said state of logical connection of said selected virtual machine to said I/O device according to a setting by said PCI connection allocating means,
wherein in response to detection of occurrence of an error in said selected virtual machine, said selected virtual machine is deactivated, connection to said I/O device is switched to a standby virtual machine, said standby virtual machine is set as an active virtual machine, and said deactivated virtual machine is repaired and set as a standby virtual machine,
wherein said plurality of virtual machine comprises comprise first and second virtual machines,
wherein said first second virtual machine sends to said control program a command to switch a state of logical connection of said first virtual machine to said I/O device, said first second virtual machine sends to said control program a command to deactivate or activate said first virtual machines machine upon detecting occurrence of an error in said second first virtual machine, and said control program

~~capable of deactivating or activating a~~ deactivates or activates said first virtual machine with respect to said control program in response to said command being received,

wherein said control program includes a PCI connection allocating table, said PCI connection allocating table is changed so that connection with said I/O device is switched to said ~~second~~ first virtual machine according to a control signal received, in response to said PCI connection allocating table being changed, said control program generates an interruption signal, and in response to said interruption signal being received by said ~~second~~ first virtual machine, said ~~second~~ first virtual machine changes connection to said I/O device, and

wherein said first virtual machine is rebooted to reconstruct said first virtual machine as a standby machine and a CPU allocation rate of said first virtual machine is set to be low.

5-10. (Canceled)

11. (Currently Amended) ~~[[The]]~~ An I/O device coupled with a PCI bus of a computer,
~~according to claim 9, further comprising:~~

a single port connected to said PCI bus;

signal generating means for generating an interruption signal used to change a state of logical connection of said port according to a control signal received from said computer;

an operating system performing hot-add/remove processing of said I/O device in response to said interruption signal running on said computer; and

an allocating means for setting said state of logical connection of said port, wherein said computer, when receiving said interruption signal, changes a state of logical connection of said computer to said port,

wherein in response to detection of occurrence of an error in a virtual machine, said virtual machine is deactivated, connection to said I/O device is switched to a standby virtual machine, said standby virtual machine is set as an active virtual machine, and said deactivated virtual machine is repaired and set as a standby virtual machine,

wherein said signal generating means generates ~~[[an]]~~ said interruption signal and updates said allocating means for setting said state of logical connection of said port,

wherein ~~said first~~ a second virtual machine sends to said control program a command to switch a state of logical connection of a first virtual machine to said I/O device, said ~~first~~ second virtual machine sends to said control program a command to deactivate or activate said first virtual machines machine upon detection of occurrence of an error in said ~~second~~ first virtual machine, said control program ~~capable of deactivating or activating a~~ deactivates or activates said first virtual machine with respect to said control program in response to said command being received,

wherein said control program includes a PCI connection allocating table, said PCI connection allocating table is changed so that connection with said I/O device is switched to said ~~second~~ first virtual machine according to a control signal received, in response to said PCI connection allocating table being changed, said control program generates an interruption signal, and in response to said interruption signal being received by said ~~second~~ first virtual machine, said ~~second~~ first virtual machine changes connection to said I/O device, and

wherein said first virtual machine is rebooted to reconstruct said first virtual machine as a standby machine and a CPU allocation rate of said first virtual machine is set to be low.~~[[.]]~~

12-14. (Canceled)

15. (Currently Amended) ~~[[The]]~~ A method according to claim 13, for sharing an I/O device coupled with a PCI bus of a computer among a plurality of virtual machines formed on a control program of said computer, comprising the steps of:

selecting at most one virtual machine among said plurality of virtual machines at a time;

enabling said I/O device to set a state of logical connection between said selected virtual machine and a single port of said I/O device connected to said PCI bus through said single port;

changing said state of logical connection between said port and said selected virtual machine according to a control signal received from said selected virtual machine;

in response to detection of occurrence of an error in said selected virtual machine, deactivating said selected virtual machine; then,

switching connection to said I/O device to a standby virtual machine;

setting said standby virtual machine as an active virtual machine; and

repairing said deactivated virtual machine, and

setting the repaired deactivated virtual machine as a standby virtual machine,

wherein said computer includes first and second virtual machines formed therein,

wherein said step of changing said state of logical connection includes the steps of, when detecting error occurrence in any of said plurality of virtual machines, updates updating an allocation table for setting said a state of logical connection between said port and each virtual machine, lets letting said error-detected virtual machine stand by and activate activating another virtual machine,

wherein said ~~first~~ second virtual machine sends to said control program a command to switch a state of logical connection of said first virtual machine to said I/O device, said ~~first~~ second virtual machine sends to said control program a command to deactivate or activate said first virtual machines machine in response to detection of occurrence of an error in said second first virtual machine, said control program ~~capable of deactivating or activating a~~ deactivates or activates said first virtual machine with respect to said control program in response to said command being received,

wherein said control program includes a PCI connection allocating table, said PCI connection allocating table is changed so that connection with said I/O device is switched to said ~~second~~ first virtual machine according to a control signal received, in response to said PCI connection allocating table being changed, said control program generates an interruption signal, and in response to said interruption signal being received by said ~~second~~ first virtual machine, said ~~second~~ first virtual machine changes connection to said I/O device, and

wherein said first virtual machine is rebooted to reconstruct said first virtual machine as a standby machine and a CPU allocation rate of said first virtual machine is set to be low.

16-18. (Canceled)

- 19. (New) The computer system according to claim 4, wherein the I/O device is a disk unit.
- 20. (New) The I/O device according to claim 11, wherein the I/O device is a disk unit.
- 21. (New) The method according to claim 15, wherein the I/O device is a disk unit.
- 22. (New) The computer system according to claim 4, wherein the system comprises a plurality of I/O devices.
- 23. (New) The method according to claim 21, wherein the PCI bus is coupled with a plurality of I/O devices.